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### Remarks

This is in response to the Office Action mailed on March 6, 2006. Claims 1-52 are pending in the application. With this amendment, claims 2, 4, 18, 28, and 30 are amended. Claims 21-22 are cancelled.

Although the Office Action on page two acknowledged the receipt of the preliminary amendment of March 21, 2002, adding claims 40-52, the Office Action only included reference to the originally filed claims 1-39. Applicant respectfully requests that claims 40-52 be examined. Based on the remarks submitted here, Applicant submits that the pending claims are allowable over the prior art.

### Claim Objections

Claims 18 and 21-22 were objected to in the Office Action. Claim 18 was objected to because the acronym "MIP" needed to be defined. The claim has been amended to define "MIP" as a "mix integer programming." Support for this definition can be found in the specification on page 7 in the table and on page 10, lines 29-30. Claims 21-22 have been cancelled. Accordingly, Applicant respectfully requests removal of the objection of the claims.

### Rejections of claims 2-13 and 28-39 under 35 USC 112, second paragraph

Claims 2-13 and 28-39 were rejected under 35 U.S.C. 112, second paragraph, because it was unclear as to what the parameters in the claims represent. Claims 2, 4, 28, and 30 have been amended to include a description of the claimed parameters. Support for the parameters is included throughout the specification and in particular in Table IV on page 4 of the specification. Applicant respectfully requests that the rejection under 35 U.S.C. 112, second paragraph be withdrawn.

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**Rejection of the Claims under 35 U.S.C. 101**

Claims 1 and 18 were rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter, as were "any other claims depending on independent claims 1 and 18," as set forth in the Office Action. These claims include claims 2-17 and 19-39.

Applicant is unclear as to the reasoning in the Office Action as to which prong of the Examiner's test, if any, the claims do pass. For example, the Office Action claims that "claims 1 and 18 pass the first prong test (the claims are in the technological)." But in the next paragraph, the Office Action states "the broadest reasonable equivalent disclosed fails to pass the first prong technological arts test and therefore recites non-statutory subject matter under 23 U.S.C. 101." The Office Action also states that "claims 1 and 8 fail to clearly recite a 'useful, concrete and tangible result' (i.e., generating the alternative training plans)." Applicant respectfully requests clarification if this rejection is to be maintained.

Applicant respectfully traverses the rejection based on non-statutory subject matter, because the Examiner's reliance on the two pronged "technological arts" and "useful, concrete, and tangible results" test, and particularly the "technological arts" prong is not supported in the patent law (see MPEP section 2100).

More particularly, United States patent law does not support the application of a "technical aspect" or "technological arts" requirement. Title 35 of the United States Code does not recite, explicitly or implicitly, that inventions must be within the "technological arts" to be patentable. Section 101 of Title 35 recites that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor . . . ." Accordingly, while an invention must be "new" and "useful," there is no statutory requirement that it fit within a category of "technological arts."

Although there has been some judicial discussion of the expression "technological arts" and its relationship to patentability, this dialogue has been rather limited and its viability is

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questioned. In 1970, the Court in *In re Musgrave* [431 F.2d 882, 167 USPQ 280 (CCPA 1970)] introduced a new standard for evaluating process claims under Section 101: any sequence of operational steps is a patentable process so long as it is within the technological arts so as to promote the progress of useful arts. Since the announcement of a new "technological arts" standard in *Musgrave*, only fourteen cases make reference to this so-called "technological arts" standard. In fact, only a handful of cases immediately following the *Musgrave* decision employed the "technological arts" standard in determining whether an invention is a process within the framework of Section 101. Instead, the Supreme Court refused to adopt that test when it reversed the Court of Customs and Patent Appeals in *Gottschalk v. Benson*, 409 U.S. 63, 175 USPQ 673 (1972). See also *Diehr*, 450 U.S. at 201, 209 USPQ at 14 (J. Stevens dissenting) (discussing the Court did not recognize the lower court's technological arts standard). Moreover, the CCPA effectively rejected the technological arts test in *In re Toma*, 575 F.2d 872, 878, 197 USPQ 852, 857 (CCPA 1978), by strongly suggesting that *Musgrave* was never intended to create a technological arts test for patent eligibility: "The language which the examiner has quoted [from *Musgrave* and its progeny relating to "technological arts"] was written in answer to "mental steps rejections and was not intended to create a generalized definition of statutory subject matter. Moreover, it was not intended to form a basis for a new Sec. 101 rejection as the examiner apparently suggests." *Toma*, 575 F.2d at 878, 197 USPQ at 857.

In addition, the "technological arts" consideration is completely absent from recent Federal Circuit case law like *State Street* and *AT&T*. Given the current trend in the law, the *Musgrave* test should not be considered as current legal jurisprudence, and should not be used to evaluate process inventions for compliance with Section 101.

More important, the *Musgrave* decision should not be interpreted as imposing a new requirement that certain inventions be in the "technological arts" to be patentable. Instead, *Musgrave* should be limited to its facts and holding, i.e., that the computer-related invention in dispute was a patentable invention within the meaning of Section 101 because it was an advancement in technology which clearly promoted the useful arts. Thus, the *Musgrave* decision should not be construed as announcing a new stand-alone "technological arts" test for

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patentability, but should stand for the proposition that computer-implemented process claims may be patentable subject matter.

Furthermore, any attempts to define what is "in the technological arts" raise more questions than it appears to answer. The mere application of an article or a computer does not automatically qualify as eligible subject matter. See, e.g., *Benson*, 409 U.S. 63, 175 USPQ 673. Thus, this potential analysis improperly focuses on how the invention is implemented rather than on what is the practical application and the result that is achieved.

In *Ex parte Lundgren*, Appeal No. 2003-2088, Application 08/093,516, (Precedential BPAI opinion September 2005), the Board rejected the examiner's argument that *Musgrave* and *Toma* created a technological arts test. "We do not believe the court could have been any clearer in rejecting the theory the present examiner now advances in this case." *Lundgren*, at 8. The Board held that "there is currently no judicially recognized separate "technological arts" test to determine patent eligible subject matter under Sec. 101." *Lundgren* at 9.

Accordingly, USPTO personnel should no longer rely on the technological arts test to determine whether a claimed invention is directed to statutory subject matter. There is no other recognized exception to eligible subject matter other than laws of nature, natural phenomena, and abstract ideas.

Applicant respectfully submits that the present claims are directed toward statutory subject matter. A computer-related process is patentable if the computer's manipulation of the process results in a practical application. MPEP § 2106 (IV)(B)(2)(b)(ii). The MPEP states, "A claim is limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something." In the present case, the claims are all directed to a system or method for generating alternate training plans suitable for use by strategic planners in training flight crews or other airline personnel. All of the claims include language, features, or steps directed toward this concrete, tangible, and useful result.

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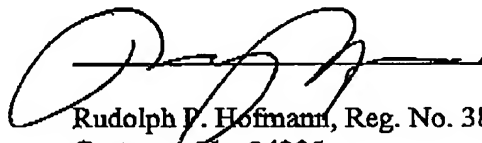
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Accordingly, Applicant respectfully requests removal of the rejections based on 35 U.S.C. §§ 101 and 112, and requests favorable action and allowance of the application.

In the event a telephone conversation would expedite the allowance of the present application, the undersigned may be reached at 612-607-7340. If any fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees, including fees for any extension of time, to Deposit Account No. 50-1901 (Docket 20032-3005).

Respectfully submitted,

  
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